L#	Date	Time	Lecturer	Topic	Chapter reading
1	17.9.	17:00-19:50			
2	24.9.	17:00-19:50	Pavel Plevka	Development of X-ray crystallography, crystallization of macromolecules, phase diagram, Crystal symmetry, symmetry operators, point groups, space groups.	Drenth: 1, 2, 3
	1.10.			No lecture	
3	8.10.	17:00-19:50	Pavel Plevka	Diffraction of light by electrons, atoms, unit cell, crystal. Bragg's law. Diffraction images and indexing.	Drenth: 4
4	15.1	17:00-19:50	Pavel Plevka	Fourier transform, structure factor, intensity of diffraction spots.	Drenth: 4, 5
5	22.10.	17:00-19:50	Pavel Plevka	Solutions to phase problem in X-ray crystallography. Isomorphous replacement, SAD, MAD, Molecular replacement. Rotation and translation function. Model building and refinement.	Drenth: 7, 10
6	29.10.	17:00-19:50	Tibor Füzik	Electron microscope. Interaction of electrons with matter, electron imaging. Amplitude and phase contrast. Contrast transfer function.	Frank: 1, 2
7	5.11.	17:00-19:50	Tibor Füzik	Fourier transform and its properties, convolution, point spread function.	Frank: 2
8	12.11.	17:00-19:50	Jiří Nováček	Analysis of electron micrographs. 2D classification. Principal component analysis.	Frank: 3, 4
9	19.11.	17:00-19:50	Jiří Nováček	Three dimensional reconstruction - single particle reconstruction and tomogram calculation. 3D classification.	Frank: 5
10	26.11.	17:00-19:50	Jiří Nováček	Improving cryo-EM reconstruction, particle polishing, Ewalds, sphere correction, per particle CTF, … Model building and refinement. Detection of errors, validation and detection of mistakes.	Frank: 6
11	3.12.	TBD			